

Environmental Controls and Life Support System (ECLSS) Design for a Multi-Mission Space Exploration Vehicle (MMSEV)

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Engineers at Johnson Space Center (JSC) are developing an Environmental Control and Life Support System (ECLSS) design for the Multi-Mission Space Exploration Vehicle (MMSEV). The purpose of the MMSEV is to extend the human exploration envelope for Lunar, Near Earth Object (NEO), or Deep Space missions by using pressurized exploration vehicles. The MMSEV, formerly known as the Space Exploration Vehicle (SEV), employs ground prototype hardware for various systems and tests it in manned and unmanned configurations. Eventually, the system hardware will evolve and become part of a flight vehicle capable of supporting different design reference missions. This paper will discuss the latest MMSEV ECLSS architectures developed for a variety of design reference missions, any work contributed toward the development of the ECLSS design, lessons learned from testing prototype hardware, and the plan to advance the ECLSS toward a flight design.